FACSIMILE TRANSMITTAL FORM	Application Number	10/028173
	Filing Date	December 21, 2001
	First Named Inventor	Larson, James M.
	Art Unit	1762
	Examiner Name	Frederick John Parker
Fax: 703-872-9306	Attorney Docket Number	57411US002
Total Number of Pages in This Submission: 9		
Date: May 13, 2005	Attorney for Applicant: Philip Y. Dahl	

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ENCLOSURES (check all that apply)

☐ Fee Transmittal Form ☐ Issue Fee Transmittal ☐ Amendment Transmittal	☐ Petition	☐ Appeal Communication to Board of Appeals and Interferences
☐ Amendment/Reply ☐ After Final ☐ Affidavits/Declaration(s)	☐ Petition to Convert a Provisional Application	☒ Appeal Communication to Technology Center (Appeal Notice, Brief, Reply Brief)
☐ Extension of Time Request	☐ Power of Attorney, Revocation	☐ Proprietary Information
☐ Express Abandonment Request	☐ Change of Correspondence Address	☐ Status Letter
☐ Information Disclosure Statement	☐ Terminal Disclaimer	☐ Other Enclosures:
☐ Response to Missing Parts/ Incomplete Application ☐ Response to Missing Parts under 37 CFR § 1.52 or 1.53 ☐ Response to Missing Parts under 35 USC 371 in US Designated/ Elected Office (DO/EO/US)	☐ Request for Refund ☐ Request for Continued Examination (RCE) Transmittal	
☐ Drawings	☐ After Allowance Communication to Technology Center	

REMARKS:

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	LARSON, JAMES M.		
Application No.:	10/028173	Group Art Unit:	1762
Filed:	December 21, 2001	Examiner:	Frederick John Parker
Title:	PRECOMPRESSED GAS DUFFUSION LAYERS FOR ELECTROCHEMICAL CELLS		

BRIEF ON APPEAL

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR § 1.8(a)]
I hereby certify that this correspondence is being transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at (703) 872-9306.

May 13, 2005
Date

Signed by: Phyllis Boettcher

Dear Sir:

This is an appeal from the Office Action mailed on December 23, 2004, finally rejecting claims 1-5.

A Notice of Appeal in this application was mailed on March 23, 2005, and was received in the USPTO on March 23, 2005.

The fee required under 37 CFR § 41.20(b)(2) for filing an appeal brief should be charged to Deposit Account No. 13-3723.

Appellants request the opportunity for a personal appearance before the Board of Appeals to argue the issues of this appeal. The fee for the personal appearance will be timely paid upon receipt of the Examiner's Answer.

REAL PARTY IN INTEREST

The real party in interest is 3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

STATUS OF CLAIMS

Claims 1-17 are pending. Claims 6-17 are withdrawn. Claims 1-5 stand rejected. Claims 1-5 are the subject of this appeal.

STATUS OF AMENDMENTS

No amendments have been filed after the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

The claims at issue concern methods of making a gas diffusion layer (GDL) for an electrochemical cell and the GDL so made. (Specification at p. 1, ln. 20 – p. 2, ln. 8 and claims 1-3). The method includes the steps of: a) providing a plain-weave carbon fiber cloth; b) coating a surface of the carbon fiber cloth with a specified layer to make a coated plain-weave carbon fiber cloth; and c) compressing the coated plain-weave carbon fiber cloth to a compression of 25% or greater; wherein step c) does not include attaching the plain-weave carbon fiber cloth to another layer. Claims 2 and 3 require compression to a compression of 28% or greater or 40% or greater. (Id.)

The GDL according to the present invention can be incorporated into a membrane electrode assembly (MEA) comprising a very thin polymer electrolyte membrane (PEM) without increased shorting across the PEM, even when the MEA is under compression. (Specification at p. 1, lns. 12-14 and p. 2, lns. 4-8).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

First Ground of Rejection

Claims 1-5 stand rejected under 35 USC § 103(a) as purportedly unpatentable over U.S. Pat. No. 4,293,396 (Allen) taken in view of U.S. Pat. App. Pub. No. 2002/0134501 (Fan).

ARGUMENT

First Ground of Rejection

Claims 1-5 stand rejected under 35 USC § 103(a) as purportedly unpatentable over U.S. Pat. No. 4,293,396 (Allen) taken in view of U.S. Pat. App. Pub. No. 2002/0134501 (Fan).

It is axiomatic that, in order to establish a prima facie case of obviousness of a claim, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)("All words in a claim must be considered in judging the patentability of that claim against the prior art.")(cited at MPEP § 2143.03). In the present case, no prima facie case of obviousness has been established because none of the cited references teaches or suggests the step of "compressing said coated plain-weave carbon fiber cloth to a compression of 25% or greater," recited in step c) of claim 1.

As the Examiner notes in the Office Action dated July 26, 2004, Allen does not teach the step of compressing a gas diffusion layer to a compression of 25% or greater, recited in step c) of claim 1. (July 26, 2004, Office Action at p. 4.) As noted in the same Office Action, Fan purportedly teaches a method where a coated carbon cloth is "rolled to substantially eliminate cracks." (Id.) The Office Action correctly observes that "the amount of compression of the coated cloth is not cited" in Fan. (Id.) Indeed, the term "rolling," used throughout the Fan reference, does not necessarily require *any* degree of compression. In order to infer from Fan the substantial degree of compression required in the present claims, (25% in claim 1, 28% in claim 2 and 40% in claim 3), the Examiner relies on an incorrect and impermissible conclusion that Fan and Applicant's claims share "identical use and outcomes." (Id.)

As noted above, the Examiner points out that the "rolling" step in Fan is for the stated purpose of *eliminating cracks* in a *surface coating* on a carbon cloth, a purpose which could be inferred to require no more than superficial deformation of the *surface coating* on the carbon cloth. In contrast to the stated purpose of Fan, the present Specification concerns manufacture of

a GDL "which can be incorporated into a membrane electrode assembly (MEA) comprising a very thin polymer electrolyte membrane (PEM) without increased shorting across the PEM even when the MEA is under compression." (Specification at p. 1, lns. 12-14.) The very thin PEM is "typically 50 microns or less in thickness, more typically 35 microns or less in thickness, and most typically 25 microns or less in thickness." (Specification at p. 7, lns 17-18.) By way of comparison, the PEM taught in Fan has a thickness of 5 mils (Fan para. 46) or 127 microns, more than 2 ½ times larger. To satisfy the purpose of the present invention, the present claims require compression of the entire cloth, *not just a surface layer*, by at least 25%, or, in claim 2, by at least 28%, or, in claim 3, by at least 40%.

The Fan reference and the present application plainly do not share "identical use and outcomes." Fan addresses the elimination of cracks in a surface coating on the GDL. The present invention addresses reduction of shorting across a different component of the fuel cell, the PEM. The Examiner has demonstrated no connection between the prevention of cracks in a surface coating of the GDL and reduction of shorting across the PEM, nor do either of the cited references teach or suggest such a connection, nor is such a connection apparent. Neither of the cited references teaches or suggests the step of compressing a gas diffusion layer to a compression of 25% or greater, recited in step c) of claim 1, nor can such a teaching be read into either reference.

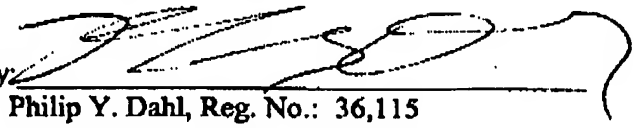
Applicants assert that the rejection of claims 1-5 under 35 USC § 103(a) as purportedly unpatentable over Allen, taken in view of Fan, should be reversed.

CONCLUSION

For the foregoing reasons, appellants respectfully submit that the Examiner has erred in rejecting this application. Please reverse the Examiner on all counts.

Respectfully submitted,

May 13, 2005
Date

By: 
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Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833

CLAIMS APPENDIX

1. A method of making a gas diffusion layer for an electrochemical cell comprising the steps of:

a) providing a plain-weave carbon fiber cloth;

b) coating a surface of said plain-weave carbon fiber cloth with a layer comprising carbon particles and one or more highly fluorinated polymers to make a coated plain-weave carbon fiber cloth; and

c) compressing said coated plain-weave carbon fiber cloth to a compression of 25% or greater; wherein said step of compressing does not include attaching said plain-weave carbon fiber cloth to another layer.

2. The method according to claim 1 wherein said step of compressing said coated plain-weave carbon fiber cloth comprises compressing said coated plain-weave carbon fiber cloth to a compression of 28% or greater.

3. The method according to claim 1 wherein said step of compressing said coated plain-weave carbon fiber cloth comprises compressing said coated plain-weave carbon fiber cloth to a compression of 40% or greater.

4. A gas diffusion layer for an electrochemical cell made according to the method of claim 1.

5. A gas diffusion layer for an electrochemical cell made according to the method of claim 3.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.